

## Ganymede Cratering: Preliminary Galileo G1 Results

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The G1 encounter of Ganymede by Galileo has revealed crater populations down to sizes less than two orders of magnitude smaller than seen by Voyager. Preliminary counts reveal striking differences in crater densities and in size frequency distributions between various units. The Uruk Sulcus grooved terrains exhibit a relatively steep size distribution (differential power law index about -4) with densities similar to crater densities observed on Gaspra. Crater densities vary by factors of a few on adjacent units, but are confused by superimposed clusters of craters (secondaries?) with diameters of about 1 km. Galileo Regio, a dark and presumably older terrain, shows crater densities only slightly greater than on Uruk Sulcus (for craters several hundred meters in diameter), but a much greater density of craters several km in diameter and larger. The latter are grotesquely deformed and dissected, presumably representing a once-saturated population of craters that has undergone massive degradational processes, largely erasing features smaller than 3 km diameter. The highest resolution images (in an unnamed sulcus), showing craters down to tens of meters diameter, reveal comparatively few craters, compared with extrapolations of the other crater counts to small sizes, indicating comparative youth of the region or a shallow slope to the production function. Studies of craters in all G1 images are affected by the low phase angle of the pictures combined with the strong correlation of small-scale albedo features with the topography. In the absence of any new information about divergent models in the literature for the impact flux in the Jovian system, our reported crater densities cannot be interpreted in terms of absolute ages.

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